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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/664,907	09/22/2003	Sung Oh II	2336-203	6802

7590

07/24/2006

LOWE HAUPTMAN GOPSTEIN GILMAN & BERNER, LLP  
Suite 310  
1700 Diagonal Road  
Alexandria, VA 22314

EXAMINER
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RONESI, VICKEY M

ART UNIT	PAPER NUMBER
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1714

DATE MAILED: 07/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/664,907

Applicant(s)

OH, SUNG

Examiner

Vickey Ronesi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 May 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) 6-8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 9-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/9/2006 has been entered.
2. All outstanding objections and rejections are withdrawn in light of applicant's amendment filed 5/9/2006.
3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior office action.

### ***Specification***

4. The substitute specification meets the requirements of 37 CFR 1.125(b) and (c) and has been entered.

### ***Claim Rejections - 35 USC § 103***

5. Claims 1-5 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Simpson (US 4,379,109).

Simpson discloses composition (col. 3, lines 44-55) comprising 15-85 vol. % ceramic powder (col. 2, lines 50-63), 5-70 vol. % polyolefin binder having a high molecular weight of at least 150,000 (col. 2, line 64 to col. 3, line 32), 10-70 vol. % plasticizer (i.e., solvent) (col. 3,

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lines 32-43), and 0.5-10 wt % of a thickening agent such as polyvinyl alcohols and acetate and acrylic copolymers (col. 4, line 62 to col. 5, line 5). While the amounts are in vol. %, it is the examiner's position that it is intrinsic that the broadly disclosed vol. % amounts overlap with the presently claimed amounts in wt %, absent evidence to the contrary. Note the Example in col. 6 where 7.5 wt % of polyethylene is utilized.

While Simpson does not exemplify a composition comprising ceramic powder, polyolefin binder with a molecular weight of 400,000 or more, plasticizer, and thickening agent in explicit amounts which fall within the presently claimed amount ranges, this does not negate a finding of obviousness under 35 USC 103 since a preferred embodiment such as an example is not controlling. Rather, all disclosures "including unpreferred embodiments" must be considered. *In re Lamberti* 192 USPQ 278, 280 (CCPA 1976) citing *In re Mills* 176 USPQ 196 (CCPA 1972). Therefore, it would have been obvious to one of ordinary skill in the art to utilize an emulsion composition comprising ceramic powder, polyolefin binder with a molecular weight of 400,000 or more, plasticizer, and thickening agent given that Simpson teaches each one.

With respect to claim 2, Simpson discloses that, depending on the desired physical properties of the final product, the high molecular weight polyethylene can be blended with standard lower molecular weight polyethylene, to the extent that a too low overall molecular weight of the blend and consequent brittleness of composition are avoided (col. 3, lines 10-15); however, Simpson does not disclose specific amounts of the lower molecular weight polyethylene.

Even so, it is the examiner's position that the amount of lower molecular weight polyethylene is a result effective variable because changing them will clearly affect the type of

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product obtained. See MPEP § 2144.05 (B). Case law holds that “discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art.” See *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). In view of this, it would have been obvious to one of ordinary skill in the art to utilize appropriate amount of polyethylene, including those within the scope of the present claims, so as to produce desired end results, i.e., decreased brittleness of the composition.

6. Claims 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Simpson (US 4,379,109) in view of Pieterse et al (US 5,268,415).

The discussion with respect to Simpson in paragraph 5 above is incorporated here by reference.

While Simpson discloses the use of plasticizer solvents such as glycols to facilitate the dispersion of the ceramic material, decrease the viscosity of the mixture and mixing required, and improves the flexibility of the green sheet (col. 3, lines 33-43), it fails to teach other solvents like presently claimed.

Pieterse et al discloses a green sheet slurry containing a higher molecular weight (at least Mw of 400,000) and teaches the use of various solvents such as paraffins, decahydronaphthalene, tetrahydronaphthalene, naphthalene, toluene, and xylene to prepare the green sheets (col. 2, lines 10-23).

Given that Pieterse et al teaches the use of suitable solvents which behave as a plasticizer in a composition to prepare green sheets, it would have been obvious to one of ordinary skill in

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the art to utilize one of the solvents of Pieterse et al in the green sheet composition of Simpson and thereby arrive at the presently cited claims.

### *Response to Arguments*

7. Applicant's arguments filed 5/9/2006 have been fully considered but they are not persuasive. Specifically, applicant argues (A) that Simpson does not disclose or suggest that its composition can be made into "a thin green sheet comprising at thickness of 10  $\mu$ m or less by extruding the composition into an extruded sheet and stretching the extruded sheet" and (B) that Simpson only discloses that its high molecular weight polymer has a molecular weight of at least 150,000 and not the presently claimed at least 400,000.

With respect to argument (A), case law holds that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). There is no suggestion in the prior art or evidence by the applicant that shows that the composition could not perform the presently claimed intended use.

With respect to argument (B), Simpson teaches an amount of at least 150,000 which clearly overlaps in scope with the presently claimed molecular weight of at least 400,000. Furthermore, applicant has not established any criticality for the molecular weight of at least 400,000. Hence, the amount of 400,000 is *prima facie* obvious over Simpson.

*Conclusion*

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vickey Ronesi whose telephone number is (571) 272-2701. The examiner can normally be reached on Monday - Friday, 8:30 a.m. - 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272-1119. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

7/17/2006  
Vickey Ronesi



*Vasu Jagannathan*  
VASU JAGANNATHAN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700